

Application No. 10/632,805

Listing of the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application:

1. (Currently Amended) A separation cartridge comprising:
~~a first separation medium;~~
~~a second separation medium positioned adjacent to the first separation medium; and~~
~~a baffle filter; and~~
~~a packed bed of porous inorganic particles positioned adjacent to the baffle filter;~~
~~a frame configured to hold the first and second separation mediums;~~
wherein the separation cartridge is ~~configured~~ used to separate one or more entrained substances from a gas stream in a kitchen hood system.
2. (Currently Amended) The separation cartridge of claim 1 wherein the ~~first and second separation mediums are selected from a group consisting of a baffle, a packed bed, a mesh filter, and combinations thereof~~ particles comprise at least one of a ceramic material or a metal.
3. (Canceled)
4. (Currently Amended) The separation cartridge of claim 3 1 wherein the packed bed is pleated.
5. (Canceled)
6. (Currently Amended) The separation cartridge of claim 5 1 wherein a mean dimension of a particle in the media a majority of the particles are approximately 0.1 millimeters to approximately 100 10 millimeters in size.
7. (Currently Amended) The separation cartridge of claim 5 1 wherein the media includes particles comprising are a plurality of sizes.
8. (Canceled)

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9. (Currently Amended) The separation cartridge of claim 5 1 wherein the media is substantially porous and comprises particles comprise an exterior surface and a plurality of channels that open onto the exterior surface and define internal surfaces.

10. (Currently Amended) The separation cartridge of claim 9 wherein the channels comprise a mean size of approximately 0.01 microns to approximately ~~10~~ 100 microns.

11. (Currently Amended) The separation cartridge of claim 9 wherein the porous inorganic particles are approximately 15% porous to approximately ~~95%~~ 70% porous.

12-15. (Canceled)

16. (Currently Amended) The separation cartridge of claim 1 wherein the first separation medium baffle filter is in contact with the second separation medium packed bed.

17. (Currently Amended) The separation cartridge of claim 1 wherein the separation cartridge is approximately 2.5 centimeters to approximately 6.4 centimeters wide.

18. (Currently Amended) The separation cartridge of claim 17 wherein the separation cartridge is approximately 3.8 centimeters to approximately 4.8 centimeters wide.

19. (Currently Amended) The separation cartridge of claim 1 wherein the hood system is a kitchen hood system used to vent the gas stream into the atmosphere.

20. (Currently Amended) The separation cartridge of claim 1 further comprising a third separation medium frame which is used to hold the baffle filter and the packed bed together.

21. (Currently Amended) The separation cartridge of claim ~~1~~ 20 wherein one or both of the first and second separation mediums baffle filter or the packed bed is configured to be easily removed from the frame.

22. (Currently Amended) The separation cartridge of claim ~~1~~ 20 wherein the first and second separation mediums baffle filter, the packed bed and the frame are fixedly coupled together.

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23. (Currently Amended) The separation cartridge of claim 1 20 wherein the frame encloses the first and second separation mediums baffle filter and the packed bed.

24. (Currently Amended) The separation cartridge of claim 1 wherein the first separation medium baffle filter is configured to be received by upper and lower railings in the hood system and the second separation medium packed bed is configured to protrude outward from a plane defined by the upper and lower railings.

25. (Currently Amended) The separation cartridge of claim 24 wherein the separation cartridge is approximately 6.35 centimeters to approximately 19 centimeters wide.

26. (Currently Amended) The separation cartridge of claim 1 wherein a height of a first portion of a side of the separation cartridge is greater than a height of a second portion of the side of the separation cartridge, the first portion of the side corresponds to a portion of the separation cartridge that comprises the first separation medium baffle filter and the second portion of the side corresponds to a portion of the separation cartridge that comprises the second separation medium packed bed, the first portion of the side being configured to be received by upper and lower railings of a hood.

27-43. (Canceled)

44. (Currently Amended) A separation cartridge comprising:
a plurality of adjacent separation mediums; and including a packed bed of porous inorganic particles, wherein the separation cartridge is used to separate an entrained substance from a gas stream in a kitchen hood system.
~~a frame configured to hold the plurality of separation mediums;~~
~~wherein the separation cartridge is configured to separate an entrained substance from a gas stream.~~

45. (Currently Amended) The separation cartridge of claim 44 wherein ~~at least one of the plurality of separation mediums comprises a mesh filter the cartridge includes only two separation mediums.~~

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46. (Currently Amended) The separation cartridge of claim 44 wherein at least one of the plurality of separation mediums comprises a baffle filter.

47-48. (Canceled)

49. (Currently Amended) The separation cartridge of claim 44 wherein the separation cartridge is configured to be used in conjunction with a kitchen hood system is used to vent the gas stream into the atmosphere.

50. (Currently Amended) A separation apparatus comprising:

~~a first plate comprising entry openings; and~~

~~a second plate comprising exit openings, the second plate being spaced apart from the first plate;~~

a plurality of perforated plates which are spaced apart from each other, each of the plurality of perforated plates include collared openings; and

~~wherein the separation apparatus is configured to separate an entrained substance from a gas stream;~~

wherein the separation apparatus is used to separate one or more entrained substances from a gas stream in a kitchen hood system;

~~wherein the entry and exit openings in one of the perforated plates are offset from the openings in another one of the perforated plates so that at least a portion of the gas stream passing through the entry openings of the one perforated plate is deflected before passing through the exit openings of the another perforated plate.~~

51. (Currently Amended) The separation apparatus of claim 50 further comprising:

~~a separation medium positioned adjacent to the first and/or second plurality of plates; and~~

~~a frame configured to hold the separation medium and the first and/or second plates.~~

52. (Currently Amended) The separation apparatus of claim 51 wherein the separation medium is a packed bed.

53. (Canceled)

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54. (Currently Amended) The separation apparatus of claim 50 wherein ~~the first and second plates each of the plurality of plates~~ comprise an open area of approximately 20% to approximately 60%.

55. (Currently Amended) The separation apparatus of claim 54 wherein ~~the first and second plates each of the plurality of plates~~ comprise an open area of approximately 30% to approximately 50%.

56. (Canceled)

57. (Currently Amended) The separation apparatus of claim 56 ~~50~~ wherein the collared openings are tapered.

58. (Currently Amended) The separation apparatus of claim 56 ~~50~~ wherein the plates are configured so that ~~both the entry and exit openings in the one plate and the another plate are~~ collared and so that ~~the a collared portion of the openings in the one plate face each other a collared portion of the openings in the another plate.~~

59. (Currently Amended) The separation apparatus of claim 58 wherein the collared portion of the ~~entry~~ openings ~~on~~ ~~in~~ ~~the first~~ ~~one~~ plate extend past the collared portion of the ~~exit~~ openings ~~on~~ ~~in~~ ~~the second~~ ~~another~~ plate.

60. (Canceled)

61. (Currently Amended) The separation apparatus of claim 50 wherein the ~~entry~~ openings are substantially uniformly positioned on the ~~first~~ ~~plate~~ ~~plates~~ and the ~~exit~~ openings are substantially uniformly positioned on the ~~second~~ plate.

62. (Currently Amended) The separation apparatus of claim 50 wherein the ~~entry~~ ~~openings and exit~~ openings ~~in the plates~~ are substantially round and/or substantially rectangular.

63. (Canceled)

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64. (Currently Amended) The separation apparatus of claim 50 wherein the separation apparatus cartridge is configured to be included in a system comprising:
a hood;
ductwork coupled to the hood; and
a fan coupled to the ductwork, the fan being configured to move air from the hood through the ductwork and into the atmosphere;
wherein the separation apparatus cartridge is coupled to the hood.

65-77. (Canceled)

78. (Currently Amended) A separation system comprising:
a kitchen hood;
ductwork coupled to the hood;
a fan coupled to the ductwork, the fan being configured used to move air including at least one entrained substance from the hood through the ductwork and into the atmosphere;
and
a separation cartridge coupled to the hood and/or ductwork, the separation cartridge including:
a plurality of separation mediums including a bed of porous inorganic particles, the plurality of separation mediums being used to separate one or more entrained substances from the air; and
a frame configured to hold the separation mediums.

79. (Original) The separation system of claim 78 wherein the separation mediums are capable of being easily removed from the frame.

80. (Currently Amended) The separation system of claim 78 wherein the separation mediums are selected from a group consisting of include a baffle, a packed bed, and a mesh filter.

81-84. (Canceled)

85. (Currently Amended) A separation system comprising:

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a kitchen hood;
ductwork coupled to the hood;
a fan coupled to the ductwork, the fan being configured to move air from the hood through the ductwork; and
a separation apparatus cartridge coupled to the hood and/or ductwork, the separation apparatus cartridge comprising:
a first plate comprising entry openings; and
~~a second plate comprising exit openings, the second plate being spaced apart from the first plate;~~
a plurality of perforated plates which are spaced apart from each other, each of the plurality of perforated plates include protrusions which extend outwardly and define openings in each plate, the protrusions on one plate extending towards the protrusions on another plate so that the protrusions on the one plate and the another plate overlap;

wherein the entry and exit openings in the one plate and the another plate are configured to be at least substantially offset so that at least a substantial portion of the air passing through the entry openings in the one plate is deflected before passing through the exit openings in the another plate.

86. (Currently Amended) The separation system of claim 85 wherein ~~the first and second plates each of the plates~~ comprise an open area of approximately 20% to approximately 60%.

87. (Currently Amended) The separation system of claim 85 wherein the separation cartridge further comprises:

~~a separation medium packed bed~~ positioned adjacent to the first and/or second plates;
and
a frame that is configured used to hold the ~~separation medium packed bed~~ and the first and/or second plates.

88. (Currently Amended) The separation apparatus of claim 85 wherein ~~one or both the entry openings and exit openings are collared the protrusions form collars around the openings in the one plate and/or the another plate.~~

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89. (Currently Amended) The separation apparatus of claim 88 wherein the ~~elliptical~~ ~~openings~~ ~~collars~~ are tapered.

90. (Canceled)

91. (Currently Amended) The separation apparatus of claim 85 wherein the ~~entry~~ ~~openings~~ are substantially uniformly positioned on the ~~first plate and the exit openings are~~ ~~substantially uniformly positioned on the second plate~~ plurality of plates.

92. (Currently Amended) A separation cartridge comprising:

 a first means for separating an entrained substance from a gas stream in a kitchen hood using a baffle and/or a mesh filter;

 a second means for separating an entrained substance from a gas stream in a kitchen hood using a packed bed; and

 a frame configured to hold the first and second means.

93. (New) The separation cartridge of claim 44 wherein the plurality of adjacent separation mediums includes a mesh filter.

94. (New) The separation cartridge of claim 44 wherein kitchen hood system includes a catalytic converter.

95. (New) The separation cartridge of claim 46 wherein the baffle filter is in contact with the packed bed.

96. (New) The separation system of claim 78 comprising a catalytic converter positioned in the ductwork.

97. (New) The separation system of claim 80 wherein the baffle filter is in contact with the packed bed.

98. (New) The separation system of claim 85 comprising a catalytic converter positioned in the ductwork.

99. (New) A separation cartridge comprising:

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a baffle filter; and
a bed of particles positioned adjacent to the baffle filter;
wherein the cartridge is used to separate one or more entrained substances from a gas stream in a kitchen hood system.

100. (New) The separation cartridge of claim 99 wherein the particle comprise at least one of a ceramic material or a metal.

101. (New) The separation cartridge of claim 99 wherein the bed is pleated.

102. (New) The separation cartridge of claim 99 wherein the particles are porous inorganic particles.

103. (New) The separation cartridge of claim 99 wherein the particles are solid.

104. (New) The separation cartridge of claim 99 wherein the baffle filter is in contact with the packed bed.

105. (New) The separation cartridge of claim 99 wherein the cartridge is approximately 2.5 centimeters to approximately 6.4 centimeters wide.

106. (New) The separation cartridge of claim 99 wherein the hood system is used to vent the gas stream into the atmosphere.